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SILICON MICROPROBE WITH INTEGRATED BIOSENSOR

by

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TECHNICAL FIELD

This invention relates to silicon microprobes, and more particularly to microprobes with biosensor capability incorporated therein for measuring analyte concentrations in a subject's blood, tissue, or other bodily fluids.

BACKGROUND

Diabetes mellitus is an insidious disease which affects more than 15 million Americans. About 1.5 million of these are Type I diabetics (insulin-dependent) and 12 to 14 million are Type II diabetics (noninsulin-dependent). The characteristics of diabetes include chronic and persistently high levels of glucose in blood and in urine. Although urine glucose has been used to monitor glucose levels, the measurement of blood glucose is more reliable and logistically feasible. Blood glucose has therefore become the most commonly followed clinical marker for monitoring the progress of diabetes (and other diseases) to determine treatment and control protocols. Glucose levels are routinely measured in doctors' offices, clinical laboratories, and hospitals. However, the most convenient and important measuring is in-home self-monitoring of blood glucose levels by the patients themselves to permit adjustment of the quantities of insulin and hypoglycemics administered. Such self-monitoring is known as self-monitored blood glucose. Normal blood glucose levels in humans are in the 70-100 mg/dl range and in the 160-200 mg/dl range after a heavy meal.